

ifconfig vs ip

The command `/bin/ip` has been around for some time now. But people continue using the older command `/sbin/ifconfig`. Let's be clear: `ifconfig` will not go away any time soon, but its newer version, `ip`, is more powerful and will eventually replace it.

The man page of `ip` may look intimidating at first, but once you get familiar with the command syntax, it is an easy read. This page will not introduce the new features of `ip`. It rather compares the `ifconfig` and `ip` commands to get a quick understanding of the command syntax.

Show network devices and configuration

```
ifconfig
```

```
ip addr show  
ip link show
```

Enable a network interface

```
ifconfig eth0 up
```

```
ip link set eth0 up
```

A network interface is disabled in a similar way:

```
ifconfig eth0 down
```

```
ip link set eth0 down
```

Set IP address

```
ifconfig eth0 192.168.0.77
```

```
ip address add 192.168.0.77 dev eth0
```

This was the simple version of the command. Often, also the network mask or the broadcast address need to be specified. The following examples show the `ifconfig` and `ip` variants.

Needless to say that the netmask can also be given in CIDR notation, e.g. as `192.168.0.77/24`.

```
ifconfig eth0 192.168.0.77 netmask 255.255.255.0 broadcast 192.168.0.255
```

```
ip addr add 192.168.0.77/24 broadcast 192.168.0.255 dev eth0
```

Delete an IP address

With `ip` it is also possible to delete an address:

```
ip addr del 192.168.0.77/24 dev eth0
```

Add alias interface

```
ifconfig eth0:1 10.0.0.1/8
```

```
ip addr add 10.0.0.1/8 dev eth0 label eth0:1
```

ARP protocol

Add an entry in your ARP table.

```
arp -i eth0 -s 192.168.0.1 00:11:22:33:44:55
```

```
ip neigh add 192.168.0.1 lladdr 00:11:22:33:44:55 nud permanent dev eth0
```

Switch ARP resolution off on one device

```
ifconfig -arp eth0
```

```
ip link set dev eth0 arp off
```

Show the routing table

```
route
```

```
ip route show
```

A nice feature of the `ip route` is that one can query which interface (and gateway) a packet to a given IP address would be routed to.

```
ip route get 192.168.88.77
```

Changing the routing table

The commands to add a route on an interface are very similar:

```
route add -net 192.168.3.0/24 dev eth3
```

```
ip route add 192.168.3.0/24 dev eth3
```

The same applies to removing entries from a routing table:

```
route del -net 192.168.3.0/24 dev eth3
```

```
ip route del 192.168.3.0/24 dev eth3
```

For completeness, the command to add a gateway:

```
route add -net 192.168.4.0/24 gw 192.168.4.1
```

```
ip route add 192.168.4.0/24 via 192.168.4.1
```

This can also be combined with a `dev eth3` interface.

Updates

12 December 2016

Added more `ip route` commands. Thanks to Will van Gulik.

27 June 2016

Added `ip route` command.

11 June 2013

Fixed a mismatch in a IP address and its netmask. Thanks to Jeffrey Ross.

19 December 2010

Added `ip addr del` command.

19 June 2010

Added `arp` command.